

U.S. Serial No. 10/086,775
Reply to Office Action of: 11/1/06
Family Number: P2002J025

Page 4

AMENDMENT TO THE CLAIMS

Claim 1. (Currently amended) A method for ~~providing improved reduction of~~ reducing particulate emissions during combustion in an engine of a hydrocarbon fuel to a level lower than that obtained as compared to emissions with Swedish Class I Diesel Fuel combusted under the same conditions in an engine which comprises combusting in the engine an emulsion of a hydrocarbon fuel and water containing a non-ionic surfactant or mixtures thereof wherein the fuel is a Fischer-Tropsch (FT) derived hydrocarbon or a mixture of a FT fuel and a conventional fuel and in which emulsion the hydrocarbon particles are substantially uniform in size and in the range of about 0.1 to about 1.0 microns and wherein said emulsion is a hydrocarbon-in-water emulsion.

Claims 2-4. (Cancelled)

Claim 5. (Previously amended) The method of claim 1 wherein the volume ratio of hydrocarbon to water is in the range of 95:5 to 60:40.

Claim 6. (Previously amended) The method of claim 5 wherein greater than 80% of the hydrocarbon particles are in the range of about 0.1 to about 1.0 microns in size.

Claim 7. (Original) The method of claim 6 wherein the Fischer-Tropsch derived hydrocarbon boils in the diesel fuel range.

Claim 8. (Original) The method of claim 7 wherein the emulsion has a viscosity in the range of about 50 to 200 mm²/sec.

Claim 9. (Currently amended) A method for forming a fuel in water emulsion which when combusted in an engine has reduced particulate matter emissions compared with the particulate matter emissions generated by a Swedish Class I Diesel Fuel when

U.S. Serial No. 10/086,775
Reply to Office Action of: 11/1/06
Family Number: P2002J025

Page 5

similarly combusted in an engine comprising shearing a Fischer-Tropsch (FT) derived hydrocarbon boiling in the diesel fuel range or a mixture of the FT fuel and a conventional hydrocarbon fuel with water in the volume ratio of hydrocarbon to water of 95:8 to 40:60 and about 0.05 to about 5.0 wt % based on the weight of hydrocarbon and water with a non-ionic surfactant or mixtures thereof having an HLB of about 5 to about 30 under shearing conditions sufficient to produce a liquid emulsion in which the hydrocarbon has particles substantially uniform in size and in the range of about 0.1 microns to about 1.0 micron.

Claim 10. (Previously amended) A liquid fuel composition comprising an emulsion of FT derived fuel in water and containing a non-ionic surfactant or mixtures thereof wherein the fuel in the emulsion has substantially uniform fuel particle sizes predominately of 1 micron or less and the emulsion has a viscosity of above about 50 mm^2/sec at 20°C.

Claim 11. (Cancelled)

Claim 12. (Currently amended) The composition of claim ~~44~~ 10 wherein the Fischer-Tropsch derived fuel boils in the diesel fuel range.

Claim 13. (New) The method of claim 1 wherein greater than 50% of the hydrocarbon particles are in the range of about 0.1 to about 1.0 microns in size.

Claim 14. (New) The method of claim 9 wherein greater than 50% of the hydrocarbon particles are in the range of about 0.1 to about 1.0 microns in size.

Claim 15. (New) The method of claim 1 wherein the particulate matter emissions produced upon combustion in an engine of the hydrocarbon-in-water emulsion are about 53 to 91.5% lower as compared to the particulate matter emissions produced upon combustion in an engine of Swedish Class I Diesel Fuel.

U.S. Serial No. 10/086,775
Reply to Office Action of: 11/1/06
Family Number: P2002J025

Page 6

Claim 16. (New) The method of claim 9 wherein the particulate matter emissions produced upon combustion in an engine of the fuel in water emulsion are about 53 to 91.5% lower as compared to the particulate matter emissions produced upon combustion in an engine of Swedish Class I Diesel Fuel.